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ON GOVERNMENT REFORM

STATEMENT BY
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BEFORE THE
HOUSE COMMITTEE ON GOVERNMENT REFORM

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Mr. Chairman and Members of the Committee:

Thank you for the invitation to testify before this committee. I appreciate the opportunity to update you on DoD's progress in transitioning to Internet Protocol version 6 (IPv6). We see IPv6 as a critical enabler in achieving our vision for global, net-centric operations. We seek to build a more agile, robust, interoperable and collaborative DoD, where warfighters, and intelligence and business users all share knowledge on a secure, dependable and global network that enables superior decision-making and effective operations. In short, we must transition to IPv6 to achieve DoD's net-centric vision.

What follows is the Department's IPv6 transition strategy, benefits of transitioning, transition costs and challenges, and an assessment of the Department's transition to date.

DoD's Transition Strategy

In June 2003, the DoD established a goal of transitioning to IPv6 by 2008. We are defining phased timelines that include specific system implementations that address increasingly complex, end-to-end functionality. However, due to the critical nature of the Department's mission, it is imperative that this transition not imperil our current operational capabilities. Achieving this goal will be influenced by the following key tenets:

- Controlling transition costs by relying primarily on already scheduled or planned technology refreshments, and by requiring IPv6 capability for acquisitions or procurements after October 2003.
- Managing transition risks in the areas of interoperability, performance, and security by a measured and controlled approach to fielding IPv6 capabilities using pilot implementations and testing and evaluation activities.
- Satisfying operational criteria, defined by the Joint Staff, that must be met before the DoD can fully transition to IPv6.
- Completing transition and implementation planning to include the development of milestone objectives to manage and control the transition.
- Availability of tested, scalable, affordable IPv6 capable, commercial products that meet the DoD's performance and assurance needs.

Benefits of Transitioning to IPv6

The Internet Protocol (IP) is becoming the foundation of interoperability across the DoD, enabling the connection of people and systems, independent of time and location. Today, sensors, platforms, weapons, and units are being built as "net-ready" nodes, incorporating IP-based protocols. The IPv6 features most important to achieving DoD net-centric operations include:

- **Nearly Unlimited, Unique Addresses**, making everything reachable, provided the authority exists.
- **End-to-End Security**, ensuring that all communications are authenticated and encrypted.
- **Mobile Communications**, allowing communications on the move and dynamic, ad-hoc networks.
- **Improved Network Operations**, permitting the creation of theater communications in significantly less time.
- **New End-to-End Functionality**, including policy-based networking and quality of service with priority and preemption.

Costs of Transitioning to IPv6

As stated previously, the DoD IPv6 transition strategy positions the DoD to complete the transition with minimal additional costs. However, even with this transition strategy there will be some additional costs for this major technology insertion, which we will address through the normal budget process. These additional costs are expected to be in the areas of:

- Planning, engineering, technical assessments, and training to support the transition to IPv6.
- Pilot implementations and testbeds to demonstrate IPv6 technology readiness and scalability.
- Modifications to ongoing developmental efforts to make them IPv6 capable.
- Upgrades to legacy equipment or software where timely technology refreshments are not programmed.

This strategy allows DoD to leverage ongoing commercial and industry IPv6 efforts to better meet DoD needs.

Challenges of Transitioning to IPv6

There are challenges in implementing IPv6 across the DoD. Careful and early planning is necessary to ensure that the DoD transitions to IPv6 are accomplished in an effective and controlled manner that optimizes end-to-end performance, interoperability, security, scalability, and reliability. The IPv6 transition must not be disruptive to everyday strategic, tactical, or business operations of the DoD. The issues that must be addressed during transition include:

- Maintaining end-to-end network and application interoperability.
- Maintaining interoperability with Allies and Coalition partners.
- Ensuring no additional security vulnerabilities are introduced.

Current DoD policy prohibits using IPv6 on networks that carry operations traffic, for example, tactical operations, today. As we continue to understand the vulnerabilities and to manage the risks, we will provide additional Information Assurance guidance that will permit deployments of IPv6 with recommended security configurations.

IPv6 Transition Assessment

The DoD has accomplished significant, critical planning activities including the development of the DoD IPv6 Transition Plan, which was formally approved in March 2005. Building on this plan, the DoD Components are developing their own transition plans. Additionally, the following have been accomplished building towards IPv6 transition:

- Established the DoD IPv6 Transition Office at the Defense Information Systems Agency to support the overall DoD enterprise transition. This Office is critical for ensuring common transition solutions, technical guidelines, knowledge-sharing and coordinating IPv6 issues. Additionally, the Services have each established their own Transition Offices to address any Service-unique issues.
- Integrated the requirement for IPv6 capability into the Defense acquisition process. Today, we are buying IPv6 capable Information Technology.
- Established an IPv6 standards profile to be used in procuring IPv6 capable products and services.
- Collaborated with industry and academia to identify and resolve IPv6 product interoperability issues.
- Established an IPv6 research and development environment using the Defense Research and Engineering Network.

Conclusion

The DoD is firmly committed to expeditiously transitioning to IPv6 in a manner that is affordable and protects interoperability, security and performance requirements. We welcome the opportunity to share our policy documents, transition plans, and technical guidance as well as lessons learned with other Federal agencies. Although our focus is on transitioning the DoD, we recognize and welcome the increased interest at the Federal level in IPv6 transition.